

A NEW SPECIES OF *LEUCIACRIA* ROTHSCHILD & JORDAN
(LEPIDOPTERA: PIERIDAE) FROM MONTANE NEW IRELAND,
PAPUA NEW GUINEA

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Abstract

Leuciacria olivei sp. nov. is described and illustrated from high elevations in southern New Ireland, Bismarck Archipelago, Papua New Guinea. The new species is compared with *L. acuta* Rothschild & Jordan, 1905, within the previously monotypic genus.

Introduction

The genus *Leuciacria* Rothschild & Jordan (1905) was proposed for the type species, the previously unique *L. acuta* Rothschild & Jordan. Klots (1933), in his extensive paper dealing with the family Pieridae in general, considered *Leuciacria* to be closest to *Elodina* C. & R. Felder, although he stated that the genus was somewhat isolated in terms of its affinities. Klots (1933) stated that neither the venation nor the genitalia of *Leuciacria* suggested any definite relationships.

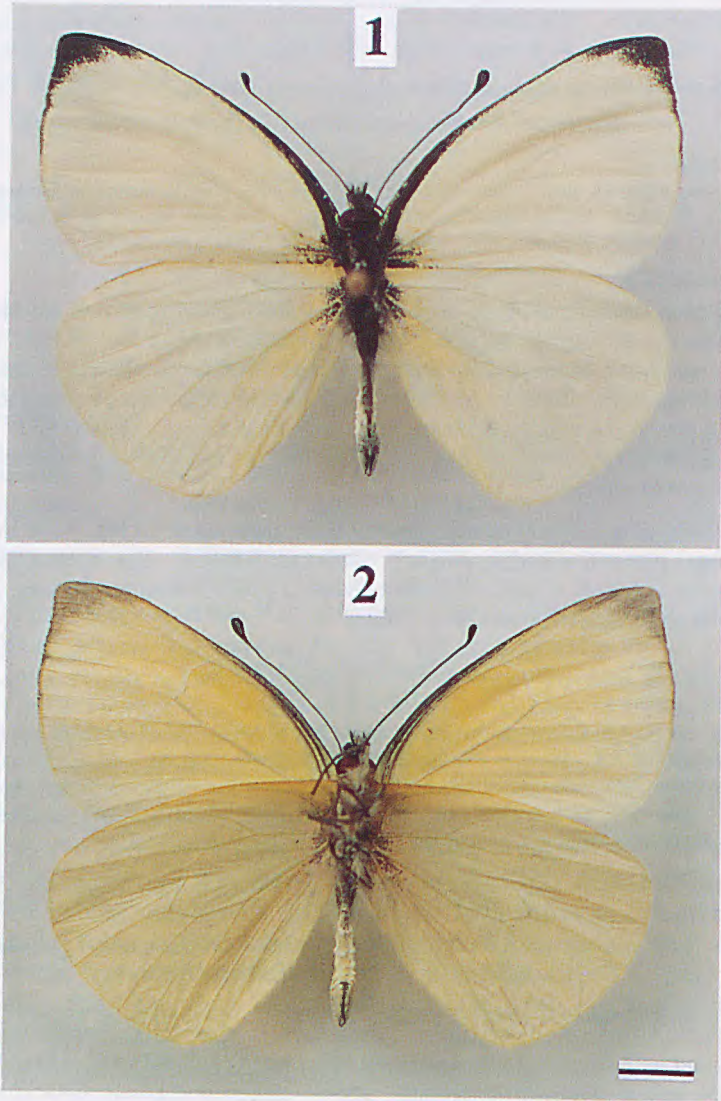
The followings abbreviations are used in this work: ANIC - Australian National Insect Collection, CSIRO, Canberra; BMNH - The Natural History Museum, London; CJMC - Private collection of C. J. Muller, Sydney; JOC - Private collection of John Olive, Cairns

***Leuciacria olivei* sp. nov.**

(Figs 1-3, 5)

Types. Holotype ♂ (ANIC genitalia slide No. 13096), PAPUA NEW GUINEA: "Hans Meyer Ra., 2400 m, S. New Ireland, 22.viii.1998, C.J. Muller" in ANIC. *Paratypes:* 1 ♂, same data as holotype (BMNH); 1 ♂, same data as holotype (JOC); 1 ♂, same data as holotype but dated 20.viii.1998 (CJMC); 1 ♂, same data as holotype, with genitalia dissected and attached to specimen (CJMC).

Description. Male (Figs 1-3). Forewing length 24.8 mm, antenna 12.9 mm. Head black with dense, deep grey hair-tufts, whitish-grey ventrally; antenna black, with conspicuous flat club, ventrally white-centered; labial palpus black and hairy. Thorax black above with numerous fine grey hairs, cream beneath; legs grey, tending light brown at end. Abdomen white, with black dorsal ridge tapering posteriorly, claspers grey. Forewing concave between apex and vein M_2 , strongly convex between tornus and vein M_2 , costa slightly bowed toward base, apex pointed; above cream, costa and apex narrowly black, base with yellow suffusion and with scattering of black scales, cilia cream; beneath cream with costa marginally black, apex light grey-fawn, strong yellow suffusion particularly in distal portion of cell, lessening

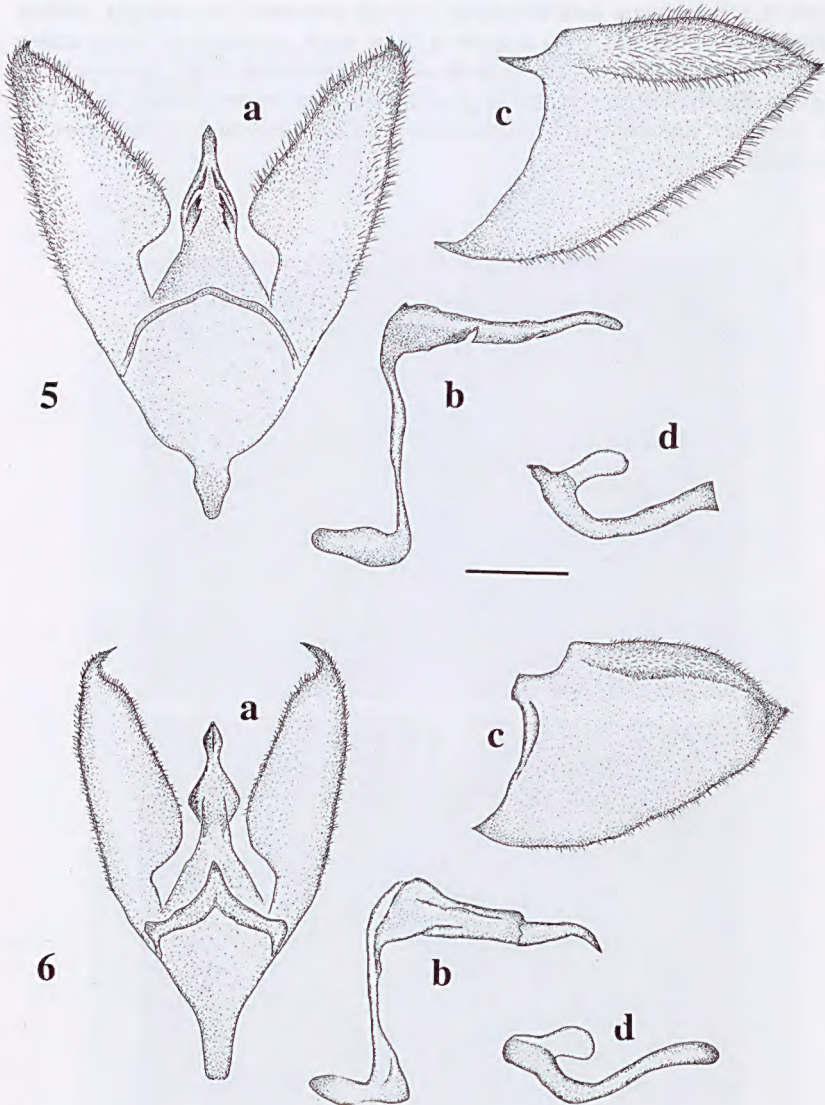


Figs 1-2. *Leuciatria olivei* sp. nov., male. (1) Upperside; (2) underside. Scale bar = 5 mm.

towards termen, cell and veins greenish proximally. Hindwing slightly rounded, above cream with fine hairs in distal area near inner margin, yellow suffusion in costal and inner margin to basal areas, scattering of black scales at base, cilia cream; beneath cream with faint greenish tinge, costa yellow, slight scattering of grey scales in postmedian area between veins CuA_1 and $3A$, parallel linearly with termen near tornus, cell and veins greenish proximally.



Figs 3-4. Adult males of *Leuciacria* spp., comparing extent of dense white scales. (3) *L. olivei*; (4) *L. acuta*. Scale bar = 8 mm.



Figs 5-6. Male genitalia of *Leuciacria* spp. **5.** *L. olivei*. (a) dorsal view; (b) vinculum and tegumen ring, lateral view; (c) left valva, lateral view; (d) aedeagus, lateral view. **6.** *L. acuta*. (a) dorsal view; (b) vinculum and tegumen ring, lateral view; (c) left valva, lateral view; (d) aedeagus, lateral view. Scale bar = 0.5 mm.

Genitalia (Fig. 5). Vinculum and tegumen ring broadly oval, indented anteriorly; uncus long, slender, gently dipping, apex dorsally sharply pointed, blunt laterally with median dorsolateral toothed processes; valva long, rather narrow, covered with fine setae, apex with tip hooked, curved inwards, ventrum irregular; tegumen short and bent upwards; aedeagus sharp, irregular basally, squared apically, post-zonal portion bowed strongly.

Female. Unknown

Etymology. Named in honour of Mr John Olive, Trinity Park, Queensland.

Discussion

The discovery of *Leuciacria olivei* sp. nov. in New Ireland is somewhat surprising, as the genus previously has not been recorded outside mainland New Guinea. Parsons (1991, 1998) stated that *L. acuta* flies at 1200-2000 m and is generally a rare taxon. *L. olivei* has been observed and/or collected between 1700 and 2400 m in the Hans Meyer Ra., southern New Ireland. Since intervening New Britain has several mountains that rise above 2000 m, it is suggested that *Leuciacria* may occur there also.

Leuciacria olivei may be separated readily from *L. acuta* (Fig. 4) by the shape of the forewing, which in *L. acuta* is strongly concave between the apex and vein M2. The costa is nearly straight in *L. olivei*, while it is strongly bowed in *L. acuta*, particularly towards the apex. The forewing black apical tip is far more reduced in *L. olivei* than in *L. acuta* and there is a strong yellowish suffusion on the ventral surface of both wings in the former that is not present in *L. acuta*.

In addition, the male genitalia of the two taxa bear several distinguishing features (Figs 5, 6). The uncus in *L. olivei* is slender with toothed dorsal processes, whilst in *L. acuta* it is more simple and diamond-shaped. Laterally, the uncus of *L. acuta* is beak-like in appearance, while that of *L. olivei* is comparatively blunt. The valvae of *L. olivei* are much longer and narrower than in *L. acuta* and the apical hook is much less pronounced than in the latter species. The aedeagus in *L. acuta* is fairly simple and blunt both anteriorly and posteriorly, whereas that of *L. olivei* is sharp and irregular basally, and squared apically.

The habitat for the type series of *L. olivei* is a mixed moss/heath forest which is peculiar to andesitic (ancient volcanic) mountain crests and slopes above 1800 m in southern New Ireland. Adults were taken, together with *Graphium kosii* Müller & Tennent (Papilionidae), *Delias messalina lizae* Müller (Pieridae), *Parantica fuscata* Parsons and *Cethosia vasalia* Müller (Nymphalidae), as they flew directly and quite rapidly above the canopy which is as low as 6 m in the highest parts of the Hans Meyer Range (Fig. 7).



Fig. 7. Type locality of *L. olivei*, Hans Meyer Range, 2400 m, southern New Ireland.

Acknowledgments

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